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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is also included. (AG)

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TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

CASE WORKER (profess. & kin.) 0-27.20

B-441 OES-175

TM 001 606

U. S. Employment Service in
Cooperation with
Colorado State Employment Service

U. S. DEPARTMENT OF LABOR
Bureau of Employment Security
Washington 25, D. C.

October 1961

CASE WORKER 0-27.20

B-441 or S-175

Summary

The General Aptitude Test Battery, B-1002-A, was administered to a sample of 35 men and 71 women employed as Case Workers 0-27.20 by the Department of Welfare, City and County of Denver, Denver, Colorado. The criterion consisted of the Department's yearly Supervisory Performance Rating. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis data, and their combined selective efficiency, Aptitudes G-Intelligence, V-Verbal Aptitude and N-Numerical Aptitude were selected for inclusion in the test norms.

GATB Norms for Case Worker 0-27.20 - B-441 or S-175

Table I shows, for B-1001 and B-1002, the minimum acceptable score for each aptitude included in the test norms for Case Worker 0-27.20.

TABLE I

Minimum Acceptable Scores on B-1001 and B-1002 for B-441 or S-175

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
G	CB-1-H CB-1-I CB-1-J	110	G	Part 3 Part 4 Part 6	105
V	CB-1-J	105	V	Part 4	105
N	CB-1-D CB-1-I	110	N	Part 2 Part 6	105

Effectiveness of Norms

The data in Table V indicate that 18 of the 32 poor workers, or 56 percent of them, did not achieve the minimum scores established as cutting scores on the recommended test norms. This shows that 56 percent of the poor workers would not have been hired if the recommended test norms had been used in the selection process. Moreover, 54 of the 68 workers who made qualifying test scores, or 79 percent, were good workers.

I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupation of Case Worker 0-27.20.

II. Sample

The GATB, B-1002A, was administered to 140 individuals employed as Case Worker 0-27.20 by the Department of Welfare, city and county of Denver, Denver, Colorado on November 10, 12, 13, 17, 19, 20, 1959. All workers obtain their initial employment by taking a competitive examination given by the Colorado Merit System. A B.A. Degree in Sociology is required for employment and those employed are expected to reach full proficiency at the end of 6 months. All workers in the sample had completed that period of service.

The original sample of 140 was reduced to 106, 35 males and 71 females, for the following reasons: 28 examinees were eliminated from the sample because they were performing duties of a supervisory nature and not the duties of Case Worker; 2 examinees were eliminated from the sample because of physical handicaps which made it impossible to complete the test; 4 examinees were over 55 years of age and were eliminated on the grounds that the GATB was standardized on a general working population sample with an age range of 18 through 54. The selection of applicants is on the basis of examination results and a personal interview.

Table II shows the means, standard deviations, ranges, and Pearson product-moment correlations with the criterion for age, education, and experience.

TABLE II

Means (M), Standard Deviations (σ), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, and Experience

Case Worker 0-27.20

N = 106

	M	σ	Range	r
Age (years)	35.8	8.5	23-54	.110
Education (years)	16.7	.9	16-19	.200*
Experience (months)	61.4	54.5	9-281	.337**

**Significant at the .01 level
*Significant at the .05 level

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There is no significant correlation between age and the criterion. The correlations between education and experience and the criterion are significant at the .05 and .01 levels respectively. These correlations indicate that the raters either had a bias in favor of those workers with more education and experience or that there was a tendency for those workers to perform better on the job. The data in Table II indicate that this sample is suitable for test development purposes with respect to age, education and experience.

III. Job Description

Job Title: Case Worker (profess. & kin.) 0-27.20

Job Summary: Performs any one or a combination of the following social service duties, in pursuance of a welfare program organized by a public or private agency or organization. Studies physical and social environment of a family, person, or persons in order to determine and execute practical plans for alleviating existing undesirable conditions. Visits home of client for purposes of obtaining initial case history, or supplemental information on a continuing case. Interprets, to recipients and others, requirements and eligibility factors for all categories. Assists client in gathering verifications. Helps clients to work through their problems and to utilize their own resources and the resources of the community. Handles situations involving planning and major decisions with families regarding relinquishments, child placement, care of dependent children, and children in danger of becoming delinquent. Makes periodic and regular visits as required during the year to the same client. Makes emergency visits when necessary.

Work Performed: Visits home of client for purposes of obtaining initial case history, or supplemental information on a continuing case. Interprets, to recipients and others, requirements and eligibility factors for all categories. Assists client in gathering verifications. Helps clients to work through their problems and to utilize their own resources and the resources of the community. Handles situations involving planning and major decisions with families regarding relinquishments, child placement, care of dependent children, and those in danger of becoming delinquent. This work requires frequent community contacts, and contacts with juvenile court, schools, hospitals, law enforcement officers, etc., necessitating considerable interpretation of agency policy. Makes periodic and regular visits as required during the year to the same client, making emergency visits when necessary.

Supervises children in foster homes, own homes, and adoptive homes and arranges for foster home placement of children who must be cared for away from home. Counsels child's own parents and obtains

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background information before child can be relinquished for adoption. Works with children in foster homes involving the children, their own parents, foster parents, as well as other agencies, such as juvenile court, hospitals, clinics, schools, etc. Observes growth and development of adoptive candidate in foster home preparatory to adoptive placement.

Uses telephone in case work either to make appointments, receive inquiries from clients, or furnish additional information. Contacts collaterals by telephone for further information as needed.

Reviews cases before visits are made to organize case plan and method as determined by needs of client. Prepares questions which must be answered during interview. Fills out necessary forms and completes all correspondence required; compiles and processes budgets for business office on basis of need and resources; schedules and conducts office interviews as necessary in each case to properly open, maintain, or close the case; plans home visits to the district. Prepares cases for dictation by assembling facts in proper sequence and reading them for accuracy; dictates all material for permanent recording in case history.

Participates in regular conferences with supervision and meetings with staff to receive instruction and guidance in the application of the program.

IV. Experimental Battery

All the tests of the GATB, B-1002A were administered to the sample group.

V. Criterion

The criterion consisted of the Department's yearly Supervisory Performance Rating made during the month of November 1959. The rating scale consisted of four items, each covering an important aspect of the duties. Each item had five possible numerical values, each indicating, in ascending order, a degree of job proficiency. The four items, which were weighted differently, had the following possible score ranges: Item I, 5 to 25; Item II, 2 to 10; Item III, 2 to 10; Item IV, 1 to 5. The total score on the scale is equal to the sum of the numbers checked for all four items. The possible range of scores was 10 through 50. The actual range was 27 through 48 with a mean of 36.1 and a standard deviation of 4.8.

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VI. Qualitative and Quantitative Analyses

A. Qualitative Analysis:

The job analysis indicated that the following aptitudes measured by the GATB appear to be important for this occupation.

Aptitude G - General Learning Ability is required in learning and understanding the philosophy and behavior of society and the methods devised to cope with them. It is also required in order for the worker to adequately understand the rules under which the Department operates.

Aptitude V - Verbal Ability is required in order to understand instruction, communicate with people in various socio-economic levels, and to interpret Departmental Rules, Regulations, and Policies.

Aptitude N - Numerical Ability is required in order that the worker may make various mathematical computations in determining budgets and amending budgets.

Aptitude Q - Clerical Perception is required in filling out a wide variety of forms and in scanning large amounts of case history material in the shortest possible time. Also, necessary in noticing transposition of figures when computing budgets.

On the basis of the job analysis data, the following aptitudes are considered obviously unimportant for performing the duties of this job and are considered "irrelevant" aptitudes: K, F and M.

B. Quantitative Analysis:

Table III shows the means, standard deviations, and Pearson product-moment correlations with the criterion for the aptitudes of the GATB. The means and standard deviations of the aptitudes are comparable to general population norms with a mean of 100 and a standard deviation of 20.

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TABLE III

Means (M), Standard Deviations (σ), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB

Case Worker 0-27.22

N = 106

Aptitudes	M	σ	r
G-Intelligence	116.1	13.2	.152
V-Verbal Aptitude	120.3	13.4	.107
N-Numerical Aptitude	111.6	12.5	.216*
S-Spatial Aptitude	104.6	17.7	-.011
P-Form Perception	102.2	16.5	.146
Q-Clerical Perception	119.0	15.2	.128
K-Motor Coordination	114.7	15.1	.087
F-Finger Dexterity	99.0	20.4	.136
M-Manual Dexterity	98.1	21.2	.189

*Significant at the .05 level

Aptitudes G, V and Q have the highest mean scores and aptitudes G, V and N have relatively low standard deviations.

For a sample of 106 cases, a correlation of .216 is significant at the .05 level of confidence. Aptitude N correlates significantly with the criterion at the .05 level.

C. Selection of Test Norms

TABLE IV

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important	X	X	X			X			
Irrelevant							X	X	X
Relatively High Mean	X	X				X			
Relatively Low Sigma	X	X	X						
Significant Correlation with Criterion			X						
Aptitudes to be considered for Trial Norms	X	X	X			X			

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Trial norms consisting of various combinations of three and four of Aptitudes G, V, N and Q with appropriate cutting scores were evaluated against the criterion by means of the tetrachoric correlation technique. A comparison of the results showed that B-1002 norms consisting of G-105, V-105 and N-105 had the best selective efficiency.

VII. Validity of Norms

The validity of the norms was determined by computing a tetrachoric correlation coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing as close as possible to one-third of the sample in the low criterion group. A criterion critical score of 33 was used and resulted in 32 of the workers, or 30 percent of the sample, being placed in the low criterion group.

Table V shows the relationship between test norms consisting of Aptitudes G, V and N with critical scores of 105, 105 and 105 respectively, and the dichotomized criterion for Case Worker 0-27.20. Workers in the high criterion group have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE V

Validity of Test Norms for Case Worker 0-27.20
(G-105, V-105, N-105)

N = 106

	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Workers	20	54	74
Poor Workers	18	14	32
Total	38	68	106

$r_{tet} = .46$ $\quad X^2 = 7.073$

$^{o}r_{tet} = .16$ $\quad P/2 < .005$

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

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VIII. Conclusions

On the basis of the results of this study, Aptitudes G, V and N with minimum scores of 105, 105 and 105 respectively, have been established as B-1002 norms for the occupation of Case Worker 0-27.20. The equivalent B-1001 norms consist of G-110, V-105 and N-110.

IX. Determination of Occupational Aptitude Pattern

A significant relationship was obtained between OAP-3 and the criterion for the experimental sample. The proportion of the sample screened out by OAP-3 was .42, which is within the required range of .10 to .60. Therefore, the occupation of Case Worker 0-27.20 will be allocated to OAP-3.